

WHAT IS CLAIMED IS:

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1. A demodulation method of demodulating an I channel signal and a Q channel signal obtained from a PSK modulated signal by a semi synchronous detection system comprising:

5 a skew detection step of calculating symbol amplitudes from a first signal on the I channel side and a second signal on the Q channel side to be inputted into a carrier reproduction circuit so as to output difference between a calculated symbol amplitudes and a predetermined reference amplitude as skew
10 signals;

a sine wave generation step of generating two orthogonal sine waves based on the skew signals; and

a skew correction step of multiplying a first skew correcting coefficient determined based on one of the two sine
15 waves and the first signal so as to obtain a first multiplied result, and multiplying a second skew correcting coefficient determined based on the other one of the two sine waves and the second signal so as to obtain a second multiplied result, and
inputting a result obtained by adding the first multiplied
20 result to the second multiplied result as new second signal into said carrier reproduction circuit.

2. A demodulation method of demodulating an I channel signal and a Q channel signal obtained from a PSK modulated signal by

25 a semi synchronous detection system comprising:

an amplitude difference comparison step of calculating a difference between a first signal on the I channel side and a second signal on the Q channel side to be inputted into a timing reproduction circuit extracting a signal at timing in
5 synchronization with a base band signal; and

an amplification step of amplifying either signal of the first signal or the second signal by means of a gain based on the difference calculated at the amplitude difference comparison step and inputting the amplified result into said
10 timing reproduction circuit instead of the first signal or the second signal.

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3. A demodulation apparatus which demodulates an I channel signal and a Q channel signal obtained from a PSK modulated
15 signal by a semi synchronous detection system comprising:

a carrier reproduction unit which complex-multiplies a first signal on the I channel side and a second signal on the Q channel side, which are obtained by orthogonally detecting the modulated signal based on a fixed oscillation frequency,
20 using two sine-wave signals which are obtained from a feedback loop which corrects a phase difference between the first signal and the second signal so as to demodulate the I channel signal and the Q channel signal;

a skew detection unit which calculates symbol amplitudes
25 represented by the first signal and the second signal so as to

output differences between a calculated symbol amplitudes and a predetermined reference amplitude as skew signals;

a filter unit which smoothes the skew signals;

a sine-wave generation unit which generates two
5 orthogonal sine waves based on the signals output from said filter unit; and

a skew correction unit which multiplies a signal representing one of the two sine waves generated by said sine-wave generation unit and the first signal so as to obtain
10 a first multiplied result, and multiplies the other one of the two sine waves and the second signal so as to obtain a second multiplied result, and inputs a result, which is obtained by adding the first multiplied result to the second multiplied result, into said carrier reproduction circuit instead of the
15 second signal.

4. The demodulation apparatus according to claim 3,

wherein said skew detection unit includes an area judgment unit which judges the symbol of the first signal and
20 the second signal is positioned which of a plurality of specified areas where the symbols are positioned in an IQ space according to the amount of phases of the PSK modulation system,

wherein codes of the skew signals are inverted according to the judged result of said area judgment unit.

5. A demodulation apparatus which demodulate an I channel signal and a Q channel signal obtained from a PSK modulated signal by a semi synchronous detection system comprising:

an A/D conversion unit which converts a first signal on the I channel side and a second signal on the Q channel side, which are obtained by orthogonally detecting the modulated signal based on a fixed oscillation frequency, into digital signals so as to output sample signals of both the digital signals;

a timing reproduction unit which extracts the sample signals of the first signal and the second signal outputted from said A/D conversion unit with timing in synchronization with a base band signal so as to output the sample signals;

an amplitude difference comparison unit which calculates a difference between the sample signals of the first signal and the second signal;

a filter unit which smoothes a signal representing the difference calculated in said amplitude difference comparison unit; and

an amplification unit which amplifies either sample signal of the first signal or the second signal by a gain according to the signal outputted from said filter unit so as to input the amplified result into said timing reproduction unit instead of the sample signal.

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